

APPENDIX A

Recent Publications

Reviewed Publications and Articles in Press

- Ando K., T. Matsumoto, T. Nagahama, I. Ueki, Y. Takatsuki, and Y. Kuroda, 2005: Drift characteristics of a moored conductivity-temperature sensor and correction of salinity data. *J. Atmos. Oceanic Technol.*, 22, 282-291.
- Ansorge I., S. Speich, J. Lutjeharms, G. Goni, C. Rautenback, P. Froneman and S. Garzoli, March-April 2005: Monitoring the oceanic flow between Africa and Antarctica: Report of the first Good Hope cruise. *South African Journal of Science*, Vol 101, pages 29-35.
- Antonov, J. I., S. Levitus, T. P. Boyer, 2004: Climatological annual cycle of ocean heat content. *Geophys. Res. Lett.*, 31, doi:1029/2003GL018851.
- Arguez, A., M. A. Bourassa, and J. J. O'Brien, 2005: Extraction of the MJO signal from QuikSCAT. *J. Atmos. Oceanic Technol.*, in press.
- Belchansky, G. I., Douglas, D. C., Platonov, N. G., 2004: Duration of the Arctic Sea Ice Melt Season: Regional and Interannual Variability, 1979–2001. *J. of Climate*: Vol. 17, No. 1, pp. 67–80.
- Belchansky, G.I. D.C. Douglas, I.N. Mordvintsev, N.G. Platonov, 2004: Estimating the time of melt onset and freeze onset over Arctic sea-ice area using active and passive microwave data, *Remote Sensing of Environment*, v 92, n 1, p 21-39.
- Bennett, A. F., B. S. Chua, H.-E. Ngodock, D. E. Harrison and M.J. McPhaden, 2005: Generalized inversion of the Gent-Cane model of the Tropical Pacific with Tropical Atmosphere-Ocean (TAO) data. *J. Mar. Res.*, in press.
- Borovikov, A., M. M. Rienecker, C. L. Kepenne, and G. C. Johnson, 2005: Multivariate error covariance estimates by Monte Carlo simulation for assimilation studies in the Pacific Ocean. *Mon. Weather Rev.*, 133, 2310–2334.
- Bourassa, M. A., 2005: Satellite-based observations of surface turbulent stress during severe weather. *Atmosphere - Ocean Interactions*, Vol. 2., ed., W. Perrie, Wesssex Institute of Technology, in press.
- Bourassa, M.A., R. Romero, S.R. Smith, and J.J. O'Brien, 2005: A new FSU winds climatology. *J. Climate*, 18, 3686-3698.
- Bowman, K.P., 2005: Comparison of TRMM precipitation retrievals with rain gauge data from ocean buoys. *J. Climate*, 18, 178-190.
- Boyer, T.P., J. I. Antonov, S. Levitus, R. Locarnini, 2005: Linear trends of salinity for the world ocean, 1955-1998. *Geophys. Res. Lett.*, 32, L01604, doi:1029/2004GL021791.
- Bretherton, Christopher S., Uttal, Taneil, Fairall, Christopher W., Yuter, Sandra E., Weller, Robert A., Baumgardner, Darrel, Comstock, Kimberly, Wood, Robert, Raga, Graciela B., 2004: The Epic 2001 Stratocumulus Study. *Bull AMS*, 85: 967-977 (online at AMS).
- Caccamise, D. J., III, M. A. Merrifield, M. Bevis, J. Foster, Y. L. Firing, M. S. Schenewerk, F. W. Taylor, and D. A. Thomas, 2005: Sea level rise at Honolulu and Hilo, Hawaii: GPS estimates of differential land motion. *Geophys. Res. Lett.*, 32, L03607, doi:10.1029/2004GL021380.
- Cai, W., M.J. McPhaden, and M.A. Collier, 2004: Multidecadal fluctuations in the relationship between equatorial Pacific heat content anomalies and ENSO amplitude. *Geophys. Res. Lett.*, 31, L01201, doi:10.1029/2003GL018714.
- Capotondi, A., M.A. Alexander, C. Deser, and M.J. McPhaden, 2005: Anatomy and Decadal Evolution of the Pacific Subtropical-Tropical Cells (STCs). *J. Climate*, in press.
- Centurioni, L.R., P.P. Niiler and D.-K. Lee, 2004: Observations of inflow of Philippine sea surface water into the South China Sea through the Luzon Strait. *J. Phys. Oceanogr.*, 34, 113-121.
- Chavez, F.P., J.T. Pennington, R. Michisaki and J.P. Ryan, 2004: The Monterey Bay Ocean Time-Series and

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<http://ioc.unesco.org/ioccp/HighCO2World.htm>

APPENDIX B

Professional Development and Community Service by Scientists Funded by the NOAA Office of Climate Observation

1. Community Service (e.g., appointments to science and implementation panels)

Molly Baringer (NOAA/AOML)

AGU Ocean Science Secretary; Member NOAA/OAR ship time scheduling panel.

Nicholas Bates (BBSR)

Committees: Scientific steering group member for the IOC-SOCR International Ocean Carbon Coordination Project (IOCCP); International Advisory Member of the European CarboOcean project; working group member for the SOLAS-IMBER carbon implementation plan; member for SOLAS-IMBER carbon working group on "Surface Observations".

Richard Bouchard (NOAA/NDBC)

Co-chaired and attended the Salinity Data Best Practices Workshop (August 2005, Charleston, SC).

Mark Bourassa (FSU)

NASA Ocean Vector Winds Science Team; NASA/OSU QuikSCAT mission; Next Vector Winds Mission Science Working Group; AMS Committee on Interaction of the Sea and Atmosphere; SEAFLUX organizing committee; NOAA OCO Ocean Observing System Team of Experts (with Smith)

John Bullister (NOAA/PMEL)

Affiliate Associate Professor, School of Oceanography, University of Washington; Fellow, Joint Institute for the Study of the Atmosphere and Ocean; "Decadal Changes in Dissolved CFCs in the Eastern Basin of the North Atlantic"; American Geophysical Union Meeting.

William Burnett (NOAA/NDBC)

NDBC DAC Director; represents NDBC on the

DBCP and reported on NDBC/DAC activities at the annual DBCP workshop held in Chennai, India (October 2004); co-organizer and co-technical lead for the QARTOD II Workshop (March 2005, Norfolk, VA), focusing on real-time QA/QC of ocean temperature, salinity, current, and waves data; co-chaired and attended the Salinity Data Best Practices Workshop (August 2005, Charleston, SC).

Francisco Chavez (MBARI)

Member of NSF Geosciences Advisory committee (2003-2005); Member NSF Alan T. Waterman award committee (2003-2005); Member Advisory Board of the Instituto del Mar del Peru (IMARPE), the Peruvian fisheries and oceanography institute (2003-); Member Board of Directors of the Center for Integrated Marine Technologies (2002-); Member Board of Governors of Pacific Coastal Observing System (2003-); Member Science Team Global Ocean Timeseries (2002-); Member COCOA (Hyperspectral satellite coastal color imager) Science Team (2003-); Member of Governing Council for Central and Northern California Coastal Ocean Observing System (CeNCOOS) (2005-).

Don Conlee (NOAA/NDBC)

Co-organizer and co-technical lead for the QARTOD II Workshop (March 2005, Norfolk, VA), focusing on real-time QA/QC of ocean temperature, salinity, current, and waves data.

Steven Cook (NOAA/AOML)

WMO/IOC Data Buoy Cooperation Panel; WMO/IOC Ship Observations Team, Chairman – Ship of Opportunity Implementation Panel, Convener - Task Team on VOS Recruitment and Program Promotion, Task Team on VOS Automated Systems, Expert Group on Instrument Testing.

Meghan Cronin (NOAA/PMEL)

Co-Chair U.S. CLIVAR Process Study and

Model Improvement Panel, U.S. CLIVAR Summit, August 2005, Keystone, CO; Co-chair of “KESS and Beyond” science meeting at JAMSTEC, Yokohama, Japan, June 2005; Organizer of “Workshop on the Application of EPIC2001 Data for Testing and Improving Coupled Atmosphere-Ocean Models” at UW/APL in May 2005; Member of advisory panel for merging NOAA PACS and GAPP programs into CPPA program, 30 November 2004; Committee member for C. Jiang, M.Sc. granted December 2004, University of Washington.

Richard Crout (NOAA/NDBC)

Co-chaired and attended the Salinity Data Best Practices Workshop (August 2005, Charleston, SC).

Yeun-Ho Chong Daneshzadeh (NOAA/AOML)

Global Temperature Salinity Profile Program committee.

Craig Engler (NOAA/AOML)

WMO/IOC Data Buoy Cooperation Panel.

Richard Feely (NOAA/PMEL)

CLIVAR/CO₂ Repeat Hydrography Oversight Committee (co-chair with Lynne Talley); Ocean Carbon and Climate Change Steering Group Member; U.S. SOLAS Implementation Group member; IMBER-SOLAS Carbon Coordination Team; CLIVAR Pacific Basin Group; Partner in the European Union Carbo-Ocean Project (U.S. Coordinator); member of PICES Working Group 17: Biogeochemical Data Integration and Synthesis; member of PICES section on Carbon and Climate; Member of International Ocean Carbon Coordination Project; Member of International Pacific CLIVAR Panel, Member of Carbon Cycle Science Program Science Steering Group, Team Member of the European CARBOOCEANS; Member of U.S. SOLAS Advisory Committee.

Paul Freitag (NOAA/PMEL)

Represents the TAO Project Office on the DBCP; reported on TAO activities at the annual DBCP workshop held in Chennai, India (October 2004); represented the TAO project office at the NOAA Climate Observation Workshop (April 2005, Washington, DC); member of the OceanSITES data team charged with ensuring

efficient and cost-effective OceanSITES data archiving and dissemination.

Silvia Garzoli (NOAA/AOML)

Member of the Science Advisory Council (SAC) of the Inter American Institute for Global Change research; Member of the OAR Climate Board; Member of the OAR Global Climate Coordination Team; NOAA Experts Team to provide input to the interagency process developing a U.S. Plan of Earth Observations.

Gustavo Goni (NOAA/AOML)

NASA Ocean Surface Topography; Member of Science Team.

Ed Harrison (NOAA/PMEL)

WCRP/GOOS/GCOS Ocean Observations Panel for Climate, Chair; OAR Climate Observing System Council, Chair; US GODAE Steering Team, Co-Chair; US GOOS SC; WCRP/GCOS Atmospheric Observation Panel for Climate; WCRP Working Group on Observations and Analysis; CLIVAR Global Synthesis and Observations Project; JCOMM Management Committee; WCRP Joint Scientific Committee; JISAO Senior Fellow; JIMAR Senior Fellow.

Gregory Johnson (NOAA/PMEL)

Member of U.S. CLIVAR/CO₂ Repeat Hydrography Oversight Committee, Member of U.S. CLIVAR Salinity Working Group, Associate Editor for Journal of Physical Oceanography.

Alex Kozyr (CDIAC)

Science Steering Committee of the European CarboOcean Project.; WG-17 and new Carbon & Climate Working Group of the North Pacific marine Science Organization (PICES); SOLAS implementation group IMP 3: Air-Sea Flux of CO₂ and Other Long-Lived Radiatively-Active Gases and Data Management Group.

Chris Langdon (RSMAS/MBF)

Co-organizer of workshop titled “Impacts of Increasing Atmospheric CO₂ on Coral Reefs and Other Marine Calcifiers” held 18-20 April 2005 in St. Petersburg, FL. Jointly funded by NSF, NOAA and USGS. “CO₂ chemistry effects on benthic calcifying communities and their roles in the global carbon cycle.” Speaker at Ocean Carbon and Climate Change (OCCC)

Workshop held 1-4 August 2005 at WHOI - "Effect of elevated CO₂ on the cycling of organic and inorganic carbon on coral reefs."

Sydney Levitus (NOAA/NODC)

Science Panels - 1992-present Member of the NOAA Climate Change Data and Detection Panel; (formerly known as Climate and Global Change, Data and Information Management Review Panel); 1993-present Project leader for IODE/IOC "Global Oceanographic Data Archaeology and Rescue" Project; 1995-present Associate Editor for the Journal of Climate; 1995-2002 Advisor to European Community MEDAR/MEDATLAS project; 2000-present U.S. Argo Science and Implementation Panel; 2003-present Intergovernmental Panel on Climate Change, Scientific Assessment: Lead Author; 2005-present Advisor to SEADATANET (an Integrated Research Infrastructure Initiative (I3) including Networking, Transnational Access and Joint Research activities (dedicated to the system improvement)).

Rick Lumpkin (NOAA/AOML)

PIRATA Science Steering Committee; Climate Observation Program Ocean Analysis Team.

Michael McPhaden (NOAA/PMEL)

Named a Fellow of The Oceanography Society in 2005; published several papers using TAO and related data sets, two papers as cover stories in their respective journal; serves on the International CLIVAR Pacific Panel and Global Synthesis and Observations (GSOP) Panel and the International CLIVAR/GOOS Indian Ocean Panel (IOP); member of the PIRATA SSG; member of the JCOMM Observations Coordination Group; chair of the Tropical Moored Buoy Implementation Panel (TIP); member of the OOPC/CLIVAR OceanSITES Working Group; serves as immediate past president of the Ocean Sciences Section of the American Geophysical Union; member of the Bulletin of the American Meteorological Society editorial board; serves on the organizing committee for the Tropical Atlantic Climate Variability Workshop to be held in Venice, Italy during 17-19 October 2005.

Mark Merrifield (UHSLC)

UHSLC director serves as the GLOSS Group of Experts chair, and center personnel also serve

on the GLOSS Technical Steering Committee; UHSLC personnel continued to serve on the National Oceanographic Partnership Program Oceans.US Applications and Products Expert Team.

Frank Millero (RSMAS/MAC)

present, Editor-in-Chief, *Marine Chemistry*; 1995 – present, Associate Editor, *Aquatic Geochemistry*; 2004-2007, Editorial Board, *Indian Journal of Marine Sciences*; Oversight Committee for the Repeat Hydrography Program (CLIVAR, CO₂/SCC) 2002-2004; Clair C. Patterson Award Committee, 2004; ACS Geochemistry Division Medal Committee, 2004; Sigma Xi, President-Elect, 2004-2006; AMLC Executive Board, 2004.

Mark Morrissey (University of Oklahoma)

Served as PI-GCOS Coordinator in Apia, Samoa from January 2004 through May 2005. Accomplishments include: Formed PI-GCOS Steering Group from original PIRGIT group; Organized the 10th Regional Meteorological Service Director's meeting, April, 2005, Niue; Organized PI-GCOS Steering group meeting, April, 2005 Niue; Prepared PI-GCOS side event at the 10th UNFCCC meeting in Buenos Aires, Argentina, December 2004.

Mayra Pazos (NOAA/AOML)

WMO/IOC Data Buoy Cooperation Panel.

Dean Roemmich (SIO)

Active in design, coordination, and implementation of global ocean observations; serves as co-chairman of international CLIVAR's Global Synthesis and Observations Panel, as co-chairman of the Argo Science/Steering Team, and through this year as a member of US CLIVAR's Science Steering Committee; Member of the Steering Team for the SEREAD education initiative, which develops teaching units and educational materials relevant to climate and ocean observations for primary and secondary curricula in South Pacific island nations.

Christopher Sabine (NOAA/PMEL)

Member of IGBP Integrated Global Carbon Observing (IGCO) theme team; member of International CLIVAR/CLIC Southern Ocean panel; member of PICES Working Group 17: Biogeochemical Data Integration and Synthesis; mem-

ber of PICES section on Carbon and Climate; lead author for IPCC Special Report on carbon dioxide capture and storage; contributing author to IPCC Fourth Assessment Report; chair of IOC/SCOR International Ocean Carbon Coordination Project (IOCCP); scientific steering committee (SSC) member for IGBP/IHDP/WCRP Global Carbon Project (GCP), U.S. North American Carbon Project (NACP), and U.S. Ocean Carbon and Climate Change (OCCC) Project.

Claudia Schmid (NOAA/AOML)

Argo Data Management Team, Executive Committee.

Shawn Smith (FSU)

Ocean.US IOOS Expert Team on Data Archival and Access; WCRP Working Group on Surface Fluxes.

Taro Takahashi (LDEO)

Community Service: Member of the State Of the Carbon Cycle Report (SOCCR) writing team, chapter lead; Member of the Ocean Sciences sub-committee, the AGU Fellows Committee, American Geophysical Union.

Chung-Chu Teng (NOAA/NDBC)

Co-organizer and co-technical lead for the QARTOD II Workshop (March 2005, Norfolk, VA), focusing on real-time QA/QC of ocean temperature, salinity, current, and waves data.

Rik Wanninkhof (NOAA/AOML)

SOLAS implementation group 2 member; SOLAS implementation team 2, data liaison; SOLAS summer school organizing committee; Liege Colloquium Series on fluid dynamic: air-sea gas transfer- Scientific steering committee; Guest editor, special section Journal of Marine systems air-sea gas transfer (Liege Colloquium Series); Thesis committee- William Hiscock, RSMAS; Hector Bustos, RSMAS; Qan Li, RSMAS; chair, PhD thesis committee Rob Masserini USF; examiner Habilitation J. Boutin, Paris; Reviewer of NOAA cooperative institute at Scripps (JIMO) Participant Cooperative Sensor Development Laboratory for Oceans of the University of South Florida; Meeting of CO₂ data reduction; Partner in the European Union Carbo-Ocean Project.

Robert Weller (WHOI)

Chair of the VOCALS Science Working Group for one year and continues on that group, working with Mechoso and Bretherton to coordinate activities with Chilean colleagues; Serves on the following: AGU, OS Section Executive Committee, Chair OS Section Awards Committee, International CLIVAR SSG, CLIVAR VAMOS EPIC Science Team, CLIVAR VOCALS (VAMOS Ocean Cloud Atmosphere Land Study) Science Team, Co-chair, U.S. CLIVAR Science Steering Committee., UNESCO/IOC Ocean Observations Panel for Climate (OOPC), NRC Committee on Strategic Guidance to NSF Atmospheric Sciences Division, ORION (Ocean Research Interactive Observatories Network) Executive Steering Committee, Co-chair, International Time Series Science Team; Reviewer: Journal of Physical Oceanography, Journal of Geophysical Research, Deep-Sea Research, Journal of Marine Research, Limnology and Oceanography, Geophysical Research Letters, Reviews of Geophysics, Journal of Atmospheric and Oceanic Technology, IEEE, Journal of Oceanic Engineering, Nature; Office of Climate Observations: Presentations at Annual System reviews, 2003–2005; Atlantic Oceanographic and Meteorological Laboratory: Discussions with Dr. M. Baringer, Physical Oceanography Research Division, regarding Atlantic VOS/XBT lines; Environmental Technology Laboratory: Cooperation with Dr. C. Fairall, Clouds, Radiation, and Surface Processes Division, on field intercomparisons of meteorological data and determination of sensor accuracy; National Data Buoy Center: Cooperation with Dr. D. Conlee on deployment of radiation sensors on NDBC buoys; ongoing discussions about passing Atlantic ORS data to NHC/TPC; National Hurricane Center – Tropical Prediction Center: Discussions with Eric Blake, Tropical Analysis and Forecast Branch, about making Atlantic ORS data available; Surface Ocean Lower Atmosphere Study Solas: Member of Implementation Group 2. WHOTS surface meteorological data are freely shared with the HOTS PI community.

Lisan Yu (WHOI)

Science and implementation panels: International CLIVAR Indian Ocean Implementation Panel; National Oceanographic Part-

nership Program (NOPP) review panel; NOAA Ocean Observing System Team of Experts; NASA Ocean Vector Wind Science Team.

2. List of conferences/workshops presented at/attended

Frank Bahr (WHOI)

Climate Observation Program Workshop in Silver Spring, MD, April 2005.

Molly Baringer (NOAA/AOML)

Spring AGU meeting, May 2005; Tropical Atlantic Climate Experiment (TACE) meeting; Miami, February 3, 2005; Office of Climate Observation Review Workshop, DC, April 2005; PPBES Ship time utilization Training, Miami, FL; AGU Fall planning meeting, September 2005, Washington, D.C.

Nicholas Bates (BBSR)

SOLAS-IMBER Carbon Implementation planning meeting (Miami, December 2005); Ocean Carbon Cycle and Climate (OCCC) meeting (WHOI, August 2005); North American Coastal Carbon meeting (Boulder, Co; Sep 2005); International Carbon Dioxide Conference (Boulder, Co; September 2005).

Mark Bourassa (FSU)

Ocean Surface Topography Science Team Meeting; The Global Ocean Data Assimilation Experiment Second Symposium; FSU's Geophysical Fluid Dynamics Institute Seminar Series; NOAA Climate Observation Program 3rd Annual System Review; Ocean Vector Wind Science Team Meeting.

John Bullister (NOAA/PMEL)

Presented "Decadal Changes in Dissolved CFCs in the Eastern Basin of the North Atlantic", American Geophysical Union Meeting.

Jonathan Callahan (NOAA/PMEL)

7th International Carbon Dioxide Conference, Boulder CO – presented data management plans and solicited feedback from the CO₂ Science Team and other ocean carbon scientists (September 2005).

Francisco Chavez (MBARI)

Invited lecture at the Bevan Series on Sustainable Fisheries entitled "Ocean Variability, Climate Change, and Sustainable Marine Resources" at the University of Washington, January 27, 2005; Invited speaker at Sardine Workshop entitled "From anchovies to sardines and back: Multidecadal changes in the Pacific Ocean, Oregon State Seafood Laboratory, Astoria, Oregon, May 4, 2005; Keynote speaker at the Alexander von Humboldt international conference on El Niño entitled "Biological consequences of El Niño in the eastern Pacific", Guayaquil, Ecuador, May 17, 2005; Contributed talk entitled "Decadal coastal ocean observations of environmental variability" at the Oceanography Society meeting in Paris, France on June 7, 2005; Invited talk entitled "Biological consequences of inter-annual to multi-decadal variability" at the IRD/IFREMER laboratory in Sete, France on June 14, 2005; Invited talk entitled "Biological and chemical consequences of El Niño" at the LEGOS laboratory in Toulouse, France on June 15, 2005; Invited talk entitled "Una nueva mandala para describir la ecología del fitoplancton marino" at the Universidad de Barcelona on June 17, 2005; Invited talk entitled "Climate and ocean variability in relation to living resources" at workshop in Corvallis, Oregon on August 11, 2005 to help NOAA define what is needed for Ocean Color Climate Data Records; Invited talk entitled "Climate and ocean variability in relation to fish (and other large marine organisms) abundance" at workshop on Pacific-Atlantic Sea Turtle Assessment, 22-23 August, 2005 in La Jolla; Invited talk entitled "U.S. West Coast Carbon Cycling" at The North American Continental Margins (Coastal CO₂) Workshop, 21-23 September, 2005 in Boulder, CO; Invited talk entitled "Climate variability, ecological processes and biogeochemical cycling in the California Current" at a Joint ECO-UP-EUR-OCEANS workshop on Upwelling Systems impacted by global change, 26-30 September, 2005 in Casablanca, Morocco.

Steven Cook (NOAA/AOML)

20th meeting of the Data Buoy Cooperation Panel (DBCP); OCO Annual System Review, April 2005; JCOMM – SOT-3 meeting, Brest, France.

Meghan Cronin (NOAA/PMEL)

“KESS Workshop”, University of Rhode Island, Sep 29-30, 2005; U.S. CLIVAR Summit, Process Studies and Model Improvement Panel, Aug 15-18, 2005; “KESS and Beyond” science meeting at JAMSTEC, Yokohama, Japan, 15 June 2005; “Workshop on the Application of EPIC2001 Data for Testing and Improving Coupled Atmosphere-Ocean Models” at UW/APL in May 2005; NOAA Climate and Global Change Postdoctoral Program Symposium, April 2005.

Craig Engler (NOAA/AOML)

20th meeting of the Data Buoy Cooperation Panel (DBCP).

Chris Fairall (NOAA/ETL)

25th Session of the Joint Scientific Committee for the WCRP, World Climate Research Program, Moscow, Russia, 1-6 March 2004. Presentation: The WCRP Working Group on Surface Fluxes; *Seventh Annual Meeting of the WCRP/CLIVAR VAMOS Panel*, NOAA-OGP, Guyaquil, Ecuador, 22-25 March 2004; Presented poster at *Office of Climate Observation Annual System Review*, NOAA, Silver Spring MD, 13-15 April 2004/2005; *Second Workshop on High-Resolution Marine Meteorology*, NOAA, Silver Spring, MD, 15-16 April, 2004; Presented paper at *Focus 2 Working Group for the International SOLAS Implementation Plan*, Surface Ocean-Lower Atmosphere Study, IGBP, Montreal, Canada, 17-19 May 2004; *First International CLIVAR Scientific Conference*, WCRP, 21-25 June 2004; Posters given: 1) Cloud forcing of the surface energy budget of the ITCZ/Cold Tongue complex in the tropical Eastern Pacific, 2) Investigation of air-sea interaction and cloud processes in the EPIC strato-cumulus region; *Annual Meeting of the WCRP/CLIVAR VAMOS Panel*, NOAA-OGP, Mexico City, Mexico, 9-11 March 2005; MD, 25-27 April 2005.

Richard Feely (NOAA/PMEL)

Fall meeting AGU, San Francisco – chaired special session on Repeat Hydrography (December 2004); Co-chaired Calcification workshop St Petersburg FL (April 2005); Presentation at NOAA COSP Annual Meeting (May 2005); Presentation at Princeton cooperative institute carbon meeting, Princeton NJ (June

2005); Presentation at the OCCC Summer Workshop, Woods Hole MA (August 2005); Coastal carbon meeting. Boulder CO – Presentation on OCCC Program (September 2005); 7th International Carbon Dioxide Conference, Boulder CO – Program Committee and poster presentation on the Repeat Hydrography Program and panelist on air-sea fluxes of CO₂ (September 2005); Testimony on impacts of Anthropogenic CO₂ in the Oceans before the Senate Commerce Committee, September 21, 2004.

Silvia Garzoli (NOAA/AOML)

CLIVAR Atlantic Meeting; January 31 – February 2, 2005, Miami; Tropical Atlantic Climate Experiment (TACE) meeting; Miami, February 3, 2005; Office of Climate Observation Annual System Review Workshop, DC, April 2005; South Atlantic Argo Regional Data Center, Cape Town, South Africa, May 2005.

Gustavo Goni (NOAA/AOML)

Office of Climate Observation Review Workshop, DC, April 2005; Ocean Surface Topography Science Working Team Meeting, Tampa, November 2004.

Ed Harrison (NOAA/PMEL)

October 12 CDEP review OGP, 2004; Nov 1-3, 2nd GODAE Symposium (St. Petersburg, FL); November 3-5 US GOOS SC Dallas; November 8-12 CLIVAR GSOP, Boulder; November 22-23, COSC DC; November 30-December 3 POGO, Brest/IOC, Paris. 2005: December 6-9 Carbon Coordination, IOC/Paris; December Ocean 500 at University of Washington, OSB 410; February 9-12 MAN4, Paris; Feb 21-23 GOOS SC8...Melbourne AU; March 7-9 SOT Brest France; March 14-18 JSC26 Guyaquil, EC; April 11-15 AOPC-11 Geneva; Apr 25-28 COSC Annual Meeting; May 9-12 OOPC-10 Geneva; May 19-22 SBSTA Bonn; Jun 1-3 WGOA, GISS; August 16-18 GCOS Chairs, WMO; September 17-21, JCOMM-II, Halifax.

Dave Hosom (WHOI)

Climate Observation Program Workshop in Silver Spring, MD, April 2005.

Gregory Johnson (NOAA/PMEL)

American Geophysical Union Fall meeting in San Francisco, 13-17 December 2004; First Argo DMQC Workshop in La Jolla, 11-13 April

2005; Climate Observations Program 3rd Annual System Review in Silver Spring, 25-27 April 2005; Argo APEX Users' Group Workshop in Seattle, 19-21 September 2005.

Robert Key (Princeton University)

Presented Tracing the World Oceans with D14C, invited presentation, Wiener Physikalische Kolloquium, Vienna, Austria, December 13, 2004; Tracing the world oceans with D14C, invited presentation, Notre Dame Physics Colloquium, October 5, 2005.

Alex Kozyr (CDIAC)

CarboOcean meeting, January 2005; WG-17 meeting during the PICES XIII Annual Meeting, September 2005; Synthesis Project Science Team meeting at Princeton, June 2005.

Sydney Levitus (NOAA/NODC)

JCOMM Science Meeting, Climate Change and Variability in the Global Ocean (INVITED), September 2005; U. Delaware Warming of the World Ocean, 1955-2003 and Earth's Heat Balance (INVITED), September 2005; NCEP Seminar Warming of the World Ocean, 1955-2003, June 2005; International Marine Data and Information Systems (IMDIS) Brest, France "World Ocean Database 2001": An Ocean Profile-Plankton Database for Ocean and Climate-System Research, June 2005; U. Maryland Warming of the World Ocean, 1955-2003, May 2005; IFREMER Brest, France Warming of the World Ocean, 1955-2003, May 2005; IOC/IODE XVIII (Paris) Results of GODAR Project, April 2005; NASA Sea Level Panel Meeting Ocean Thermosteric Sea Level, 1955-2003, April 2005; NOAA/OGP/C2D2 Panel meeting Ocean Data Archaeology and Rescue & Ocean Analysis, March 2005; University of Bergen Salinity Variability, 1955-1998 (INVITED), March 2005; University of Bergen Building Ocean Profile-Plankton Databases for Climate System Research (INVITED), March 2005; University of Bergen Warming of the World Ocean and Earth's Heat Balance, 1955-2003 (INVITED), March 2005; American Meteorological Society Annual Meeting-Suki Manabe Symposium Variability of Heat Content and Salinity for the World Ocean, 1955-2003 (INVITED PAPER), January 2005, American Geophysical Union Annual Meeting Variability of Ocean Heat Content, Freshwater Content, and Steric Sea Level for the World Ocean,

1955-2002, December 2004, GODAR WEST-PAC Meeting (JODC, Tokyo, Japan), November 2004; Status of the IOC Global Oceanographic data Archaeology and Rescue Project (INVITED).

Rick Lumpkin (NOAA/AOML)

OCO Annual System Review, April 2005; CLIVAR Atlantic meeting, Tropical Atlantic Climate Experiment (TACE) Workshop; CBLAST meeting; EMC Workshop on Air-Sea fluxes; 10th PIRATA meeting; 20th meeting of the Data Buoy Cooperation Panel (DBCP).

J. M. Lyman (NOAA/PMEL)

Attendance at the EPIC Workshop in Seattle, WA, May 11-13.

Christopher Meinen (NOAA/AOML)

CLIVAR Atlantic meeting, Jan.-Feb. 2005, Miami, FL.; Office of Climate Observation Review Workshop, April 2005; PPBES Ship time utilization Training, Miami, FL.

Mark Merrifield (UHSLC)

January 2005, presented "GLOSS - Multipurpose Global Sea Level Observing System," World Conference on Disaster Reduction in Kobe Japan; Participated in workshop sponsored by the Japan Meteorological Agency in Tokyo, Japan on sea level variability, presented papers on the GLOSS network in the Pacific and GPS@TG issues; March 2005, participated in the International Coordination Meeting for the Development of a Tsunami Warning and Mitigation System for the Indian Ocean, Paris France, presented "GLOSS Core Network as Part of the Indian Ocean Tsunami Warning System"; April 2005, presented "GLOSS - Review and Status Report for the IOTW," Second International Coordination Meeting for the Development of a Tsunami Warning and Mitigation System for the Indian Ocean in Grand Baie, Mauritius, presented "GLOSS: Global Sea Level Observing System" at The 2nd Experts Consultation Meeting for the Establishment of a Regional End-to-end Multi-hazard Early Warning System in Southeast Asia in Bangkok Thailand; an update on multiple-use tide gauge stations was presented at the JCOMM/OPA meeting in Silver Spring, MD; June 2005, presented "Sustainable sea level stations: an example of a multiple hazard, multiple function observation and communication system" at the Asia Pacific

All Hazards Workshop in Honolulu Hawaii; June 2005, presented “GLOSS and The South-east Asia Tsunami Warning System” at the High-level Expert Meeting on Technical Options for Disaster Management Systems: Tsunamis and Others in Bangkok Thailand; July 2005, presented “Coastal Sea Level Networks - IOC GLOSS network” at the IOC and ISDR Study Tour on National Tsunami Warning System Implementation in Hawaii for High Level Administrators in the Indian Ocean Responsible for Tsunami Warning Activities in Honolulu Hawaii; August 2005, presented “GLOSS - Global Sea Level Observing System: IOTWS Standards and Sites” at the First Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS-I) in Perth Australia; September 2005, attended the International Workshop Large Recent Tsunamis in the Indian Ocean and Other Regions held in Santiago, Chile, presented two papers, one on the use of multipurpose sea level stations for tsunami warning and the second on the GCS/GLOSS network of sea level monitoring stations.

Frank Millero (RSMAS/MAC)

F.J. Millero, J.W. Morse, H. Bustos-Serrano, The formation of whittings on the Little Bahama Bank, ASLO Summer Meeting, June 19-24, 2005, Santiago de Compostela, Spain; J. M. Santana-Casiano, M. González-Dávila and F. J. Millero, Oxidation of Fe(II) in seawater, ASLO Summer Meeting, June 19-24, 2005, Santiago de Compostela, Spain; Invited lecturer, “The Carbon Dioxide System in the Oceans,” Florida State University, Tallahassee, FL, April, 2005.; Invited lecturer, Chemical Oceanography Course, Universidad Politecnica de Catalunya, Barcelona, Spain, June 25 to July 1, 2005; Invited lecturer, F.J. Millero, Chemical Oceanography, Universidad de Las Palmas, Las Palmas de Gran Canaria, Spain, July 2 to 12, 2005; Invited Lecturer, F.J. Millero, “Carbonate Parameters (pH Alkalinity, Total CO₂, Conductivity), Advanced Training Workshop on Southeast Asia Regional Carbon and Water Issues at the National Central University, Chung-Li and San Yat-Sen University, Kaohsiung, Taiwan, November 15-28, 2005.

Robert Molinari (NOAA/AOML)

OCO Annual System Review, April 2005.

Mark Morrissey (University of Oklahoma) Klatt, M.D. and M. Morrissey: PACRAIN, presented at the AMS meeting San Diego, CA, 2005; 2003, RANET possibilities in the Pacific, RANET Steering Group meeting presented in Honolulu, HI; PI-GCOS progress and plans, presented at the WMO RAV Data Management Workshop, Melbourne, Australia, November/December 2004; PI-GCOS progress and plans, presented at the 10th UNFCCC meeting, Buenos Aires, Argentina, Dec. 2004; PI-GCOS activities, presented at the CAPABLE workshop held in Apia, Samoa, May 2005.

Peter Niiler (SIO)

DBCP, October 16-19, Chennai, India: “Hurricane Drifter Deployment Results” – 2004, (Bill Scuba, Jan Mozel and Peter Niiler). Bill Scuba is the co-organizer of the DBCP Technical Session in 2004 and 2005; JIMO/NORI International Workshop on the Western Pacific Circulation, November 19, 2004, La Jolla, CA: “Western Pacific Circulation from Drifters and Altimeters”; GODAE International Workshop, November 2, 2004, St. Petersburg, FL: “The dynamics of ocean surface circulation studied using altimeter, Lagrangian drifter and wind data” (Nikolai Maximenko of University of Hawaii for Peter Niiler); Invited lecture, Office of Climate Observation Annual System Review, April 27, 2005, Silver Spring, MD: “Ocean Circulation Observations for Climate”; Invited Lecture, May 3, 2005, The Jet Propulsion Laboratory, Pasadena, CA: “The importance of observing surface circulation of the oceans.”

Mayra Pazos (NOAA/AOML)

Argos Users Regional Conference; 20th meeting of the Data Buoy Cooperation Panel (DBCP).

Tsung-Hung Peng (NOAA/AOML)

AGU 2004 Fall Meeting, 8-12 December 2004, San Francisco, CA, December 2004; CMC CO₂ meeting at Princeton University, Princeton, N.J., June 1-3, 2005; ASLO summer meeting 2005, Santiago de Compostela, Spain, June 19-24, 2005.

Susan Postawko (University of Oklahoma)

Improving communications and observations across the Pacific: The Pacific RANET Project, presented at the WMO RAV Data Management Workshop, Melbourne, Australia, November/

December 2004; Postawko, S., Ah Poe, A., Morrissey, M., The Pacific RANET Project, presented at the annual meeting of the American Geophysical Union, San Francisco, Dec. 2004; Postawko, S. and M. Morrissey: Improving Hydro-Meteorological Monitoring in Sparsely Observed Regions on Pacific Islands, presented at the Annual AMS meeting, San Diego, CA, 2005; An update on the SPaRCE program, presented at the 10th Regional Meteorological Service Directors meeting, Niue, April 2005; Community involvement and understanding of climate observations: The Schools of the Pacific Rainfall Climate Experiment, presented at the CAPABLE workshop held in Apia, Samoa, May 2005.

Richard Reynolds (NCDC)

Blended SST Analysis Changes and Implications for the Buoy Network. Presented at the Climate Observation Annual System Review, Silver Spring, MD, April 23-27, 2005; GCOS SST/Sea-Ice Working Group Progress. Presented at the Tenth Ocean Observations Panel for Climate Meeting, Geneva Switzerland, May 9-12, 2005; Plans to Develop a High Resolution SST Analysis at NCDC. Presented at the Sixth GODAE High Resolution SST Pilot Project Meeting, Exeter, UK, May 16-20, 2005; A Daily Blended Analysis for Sea Surface Temperature. Presented at the ORA/NCDC Scientific Presentations of Climate-Related Activities Workshop, Asheville, NC, September 14, 2005; Smith, T.M., and R.W. Reynolds, Prospects for Improving SST Analyses. Presented at Development of Improved Observations Workshop, NASA, Greenbelt, MD, September 28-30, 2005; Zhang, H.-M., R.W. Reynolds, and T.M. Smith, Adequacy of In Situ Observing System in the Satellite Era for Climate SST. Presented at the AMS 2005 Annual Meeting, San Diego, CA, January 9-13, 2005; Visit during July 2005 to work with Professor Dudley Chelton at the College of Oceanic and Atmospheric Sciences, Oregon State University, in Corvallis, OR to develop and test the daily OI analysis. A trip report summarizing the progress was circulated to his SST colleagues for comments. A great deal of progress was made during this visit due to frequent consultations with Chelton and due to the excellent working conditions at Oregon State.

Ignatius Rigor (UW)

Invited speaker, co-presented at MARCDAT-II

Meeting, Exeter, UK, October, 2005; co-presented at JCOMM-II Scientific Conference, Halifax, Canada, September 2005; co-authored talk at JCOMM-II Scientific Conference, Halifax, Canada, September 2005; INVITED talk at Polar Bear Specialists Group Meeting, June 2005; INVITED talk at Ice University Workshop, Canadian Ice Service, Ottawa, Canada, May 2005; Attended NOAA Arctic Ocean Observing System: Ice Thickness Component, NOAA Ocean Climate Observing System Review, Silver Spring, MD, Apr. 2005; co-authored Forecasting the Condition of Sea Ice on Weekly to Seasonal Time Scales, *NOAA Ocean Climate Observing System Review*, Silver Spring, MD, Apr. 2005; co-presented on Arctic and Global Climate Change, *NOAA Ocean Climate Observing System Review*, Silver Spring, MD, Apr. 2005; INVITED speaker on Sea Ice, *Pacific Arctic Group Symposium on Circulation and Ecology of the Pacific Arctic Shelves and Connection to Deep Basins*, Arctic Science Summit Week, Kunming, China, Apr. 2005; INVITED Keynote Speaker at *Gordon Research Conference on Polar Marine Science*, Ventura, CA, Mar. 2005; INVITED speaker at *Arctic Climate Science Priorities Workshop*, NOAA Climate Program Office, Silver Spring, MD, Feb. 2005; INVITED at *Eos Trans. AGU*, Fall Meet. Suppl., Dec. 2004; co-authored an article in the *Eos Trans. AGU*, Fall Meet. Suppl., Dec. 2004; co-authored National Oceanic and Atmospheric Administration (NOAA) Arctic Climate Change Studies: A Contribution to IPY, *Eos Trans. AGU*, Fall Meet. Suppl., Dec. 2004; co-authored a paper in *Eos Trans. AGU*, Fall Meet. Suppl., Dec. 2004; Co-authored presentation in *Eos Trans. AGU*, Fall Meet. Suppl., Dec. 2004; Observed Changes at the Surface of the Arctic Ocean, *Eos Trans. AGU*, Fall Meet. Suppl., Dec. 2004; Made contributions to Proc. Arctic Climate Impacts Assessment (ACIA) International Symposium on Climate Change in the Arctic, Reykjavik, Nov. 2004; participated in the International Symposium on Climate Change in the Arctic, Reykjavik, Nov. 2004; NOAA Arctic Climate Change Studies: A U.S. Contribution to Arctic Council Responses to the ACIA, Proc. Arctic Climate Impacts Assessment (ACIA) International Symposium on Climate Change in the Arctic, Reykjavik, Nov. 2004.

Christopher Sabine (NOAA/PMEL)

CO₂ Science Team/VOS pCO₂ meeting, Miami, FL (October 2004); PMEL Seminar Series, Seattle, WA; (title: What hydrographic sections can tell us about the global carbon cycle) (October 2004); PICES XIII meeting, Honolulu, HI; (chair session S8 on North Pacific Carbon Cycle Changes, lead author on poster, coauthor on 3 talks) (October 2004); CLIVAR Reanalysis Workshop, Boulder, CO (November 2004); Scripps Seminar, San Diego, CA; (title: The Oceanic Sink for Anthropogenic CO₂, Past, Present and Future) (November 2004); International Ocean Carbon Stakeholders Meeting, Paris; (co-organizer and chair of meeting) (December 2004); World Universities Network Video Seminar, Seattle, WA; (title: Ocean uptake of CO₂ resulting from human activity over the last 200 years) (April 2005); NOAA/PMEL Program overview, Seattle, WA; (talk: PMEL carbon program) (May 2005); CICS carbon workshop, Princeton, NJ; (talk: Decadal Changes in Ocean Carbon Uptake: Some intriguing findings from the first 3 years of the CLIVAR/CO₂ Repeat Section Program) (June 2005); Global Carbon Project SSG meeting and mini conference on vulnerabilities in carbon-climate-human system, Paris France; (talk: Vulnerabilities of the calcium-carbonate cycle: positive and negative feedbacks) (June 2005); JISAO retreat, Seattle, WA; (talk: Decadal Changes in Ocean Carbon Uptake: Some intriguing findings from the first 3 years of the CLIVAR/CO₂ Repeat Section Program) (June 2005); OCCC Meeting, Woods Hole, MA; (invited talk: The Oceanic Sink for Anthropogenic CO₂: Past, Present and Future) (August 2005); PMEL presentation to Congressional Aids; (talk: PMEL carbon program) (August 2005); US CLIVAR Panel Workshop, Keystone, CO; (invited talk: The US Ocean Carbon and Climate Change Program and opportunities for Carbon-CLIVAR connections) (August 2005); OCCC/NACP Coastal CO₂ Workshop NACM, Boulder, CO; (invited talk: OCCC/NACP Joint Coastal Carbon Studies) (September 2005); 7th International CO₂ Meeting, Broomfield, CO; (Invited talk: Decadal changes in ocean carbon uptake) (September 2005); Ocean Carbon open house, Broomfield, CO; (organizer and host) (September 2005).

Claudia Schmid (NOAA/AOML)

10th PIRATA Meeting, Fortaleza, Brazil, De-

cember 13-15, 2004; Office of Climate Observation Review Workshop, DC, April 2005.

Shawn Smith (FSU)

85th AMS Annual Meeting; Office of Climate Observation Annual System Review; UNOLS RVTEC Annual Meeting; 1st CLIVAR GSOP Panel Meeting; CLIVAR Workshop on Ocean Reanalysis; 1st WCRP Working Group on Surface Fluxes Meeting; The Shipboard Automated Meteorological and Oceanographic Systems (SAMOS) Initiative. Presentations at the 2004 *UNOLS Research Vessel Technical Enhancement Committee Meeting*, St. Petersburg, FL, 2004.

Derrick Snowden (NOAA/AOML)

JCOMM – SOT-3 meeting, Brest, France.

Taro Takahashi (LDEO)

Keynote address, Global and regional distribution of surface water pCO₂ over the oceans. International Conference on the Ocean CO₂, Tsukuba, JAPAN, Jan., 2004; Invited presentation, Decadal Time Scale Change of the Surface Water pCO₂ over the North Pacific. The North Pacific Carbon Chemistry Workshop, Seattle, WA, June 2004; Olafsson, J., Takahashi, T., Olafsdottir, S. R. and Danielsen, M., Carbon dioxide and nutrients in Atlantic, Arctic and Polar waters of the N-Atlantic. Challenger Conference on Marine Sciences, Liverpool, UK, Sept. 15, 2004; Matter, J., Goldberg, D. and Takahashi, T., In-situ testing of geological carbon dioxide sequestration in basalt aquifers: Results from a pilot study in the Palisade diabase (New York). Chapman Conference, San Diego, CA, Jan., 2005; Fladeland, M. M., Dobosy, R. Takahashi, T. and Sullivan, D. Eddy flux measurements in the Southern Ocean marine boundary layer using long-duration, low-altitude robotic aircraft. NASA Suborbital Flight Program meeting, Washington, D. C. January 31, 2005; Takahashi, T., Feely, R.A., Wanninkhof, R. and Sutherland, S. C. Decadal change of the surface water pCO₂ in the North Pacific: A synthesis of 35 years of observations. European Geophysical Union meeting, Vienna, Austria, May 2005; Matter, J. M. Goldberg, D. S. and Takahashi, T. Tests of In-Situ CO₂-Water-Rock Reactions During Carbon Dioxide Injections in Basaltic Rocks: Toward permanent sequestration of CO₂. Annual Meeting, DoE Carbon dioxide Sequestration conference, Washington, D. C., 2005;

Feely, R. A., Takahashi, T. and Wanninkhof, R. Sources and Sinks of Carbon Dioxide in the Surface Oceans (2005). Goldschmidt Conference, Moscow, ID, August 2005; Gruber, N., Mikaloff-Fletcher, S. E., Jacobson, A. R., Gloor, M., Sarmiento, J. L. and Takahashi, T. Oceanic sources and sinks for atmospheric CO₂. 7th International Carbon Dioxide Conference, Boulder, CO, September 2005; Corbière, A., Metzl, N., Reverdin, G., Brunet, C., Ramonet, M. and Takahashi, T. (2005). Interannual variability of the carbon dioxide system and air-sea CO₂ fluxes in the high latitude of the North Atlantic Ocean: 1993-2004 (SURATLANT Program). 7th International Carbon Dioxide Conference, Boulder, CO, September 2005.

Rik Wanninkhof (NOAA/AOML)

First International SOLAS science meeting, Halifax, Canada (September 2004); International air-sea interaction conference Kyoto, Japan - invited speaker (October 2004); Fall meeting AGU, San Francisco – presentation (December 2004); Calcification workshop St Petersburg FL (April 2005); Liege Colloquium Series on fluid dynamic: air-sea gas transfer-presentation (May 2005); Princeton cooperative institute carbon meeting, Princeton NJ (June 2005); SOLAS summer school. Cargèse, Corsica, France – lecturer (September 2005); Coastal carbon meeting. Boulder CO - invited participants and breakout session chair (September 2005); International carbon dioxide conference, Boulder CO - poster presentation (September 2005).

Robert Weller (WHOI)

Participated in workshop on the Application of EPIC2001 Data for Improving and Testing Coupled Atmosphere-Ocean Models, Seattle, May 2005; the VOCALS Science and Implementation Workshop, Corvallis, November, 2004; the VAMOS Panel in Mexico City, Climate Observation Program Workshop in Silver Spring, MD; Plueddemann, A.J. and R.A. Weller, 2005. Meteorology and air-sea fluxes from ocean reference stations, *NOAA Office of Climate Observation Workshop*, 25-27 April 2005, Silver Spring, MD.

Josh Willis (JPL, Pasadena, CA)

Presentations at the Ocean Surface Topography Science Team Meeting in St. Petersburg, FL, Nov. 4-6, 2004, the 2004 AGU fall meeting in

San Francisco, 13-17 December 2004, the NASA Sea Level Workshop in Landover, MD, April 11-12, 2005, and the 2005 Meeting of the International Association of Meteorology and Atmospheric Sciences (IAMAS) in Beijing, China, August 2-11, 2005.

Lisan Yu (WHOI)

November 2004: CLIVAR Ocean Reanalyses Workshop. Boulder, Colorado, Invited participation; December 2004: The AGU Fall meeting. San Francisco, CA., Invited presentation; January 2005: US CLIVAR Atlantic workshop. Miami, Florida; February 2005: NOAA/NASA workshop on Satellite Measurements of Ocean Vector Winds: Present Capabilities and Future Trends. Miami, Florida, Invited presentation; March 2005: NASA Ocean Vector Wind Science Team annual meeting. Seattle, WA., Invited participation; March 2005: The Indian Ocean Climate Symposium sponsored by the World Climate Research Program's CLIVAR project and the Intergovernmental Oceanographic Commission's Global Ocean Observing System. Hobart, Australia, Invited presentation; April 2005: NOAA's Office of Climate Observation 3rd Annual System Review workshop. Silver spring, Maryland May 2005: The AGU Spring meeting. New Orleans, Louisiana; August 2005: The NOAA/WHOI CICOR and OCCI seminar series on "The Role of Indian Ocean on Climate", Woods Hole, invited presentation.

Jia-Zhong Zhang (NOAA/AOML)

Thirteenth International Conference on Flow Injection Analysis (ICFIA 2005), Las Vegas, Nevada, USA, April 2005.

3. Outreach (e.g., education initiatives, press/media interviews, public lectures)

Molly Baringer (NOAA/AOML)

Interviewed Philadelphia Inquirer reporter Tony Wood; Interviewed book author Dallas Murphy who volunteered for the September 2005 Western Boundary Current Time Series cruise on the R/V RONALD H. BROWN.

Nicholas Bates (BBSR)

SOLAS summer school lecture on time-series

and sustained observations (Cargese, Corsica, September 2005); BBSR Board of Trustees presentation on time-series and sustained observations (May 2005); Invited talk at Princeton University (October 2005).

Gustavo Goni (NOAA/AOML)

Oceanography lecture and deployment of floats and drifters from the Semester At Sea M/V Explorer, April 2005.

Rick Lumpkin (NOAA/AOML)

Oceanography lecture and deployment of floats and drifters from the Semester At Sea M/V Explorer, Brazil to South Africa, September 2005; Supervised the deployment of an “Adopt A Drifter” buoy that has been co-adopted by Congressional School (Virginia, USA) and Elsie River High School (South Africa). Archbishop and Nobel Laureate Desmond Tutu and Captain Jeremy Kingston of the MV *Explorer* launched the drifter on 25 September 2005.



Archbishop Desmond Tutu (left) and Captain Jeremy Kingston (right) deploy a drifter from the MV Explorer's fantail.

Sydney Levitus (NOAA/NODC)

Consulted by major media including NY Times, ABC news.

Christopher Meinen (NOAA/AOML)

Interview book author Dallas Murphy; Data have been used for educational purposes at the University of Miami and at public schools across the nation.

Frank J. Millero (RSMAS/MAC)

Sloan Conference Mentor, 2004.

Derrick Snowden (NOAA/AOML)

Sea Keepers Society Workshop, Ft. Lauderdale, FL.

Robert Weller (WHOI)

The December 2004 stratus cruise also hosted a teacher from NOAA's Teacher at Sea Program (Mary Cook), as well as NOAA program managers and educational staff. During the cruise, the teacher assisted with science operations including mooring deployments and recoveries. She also hosted broadcasts, wrote daily logs, took photos, and interviewed science members and crew. This information was used to communicate with her classroom, as well as those of other land-based teachers. All of the video, pictures, and logs are available at <http://www.ogp.noaa.gov/stratus/>. The cruise also served as the germination point for the first NOAA Teacher at Sea book, describing Mary Cook's experiences on the cruise (<http://www.noaanews.noaa.gov/stories2005/s2417.htm>). Additionally, the ship played host to visiting delegations of local officials and school children during its port calls.

Guest lecturer on Air-Sea Fluxes in “Introduction to Physical Oceanography” class, 2002-2004; Co-Advisor (with W. Jenkins), Postdoc Burkard Baschek 2003-2005; Member, NE-COSEE Science Advisory Group 2004 – present; Participant, Ocean Literacy Online Workshop 2004-2005; Participant, Roundtable Discussion on Ocean Exploration, U-Mass Dartmouth, January 2004; Participant, NE-COSEE Telling Your Story Workshop, January 2004; Presenter, U.S. ambassador to Barbados visit to NOAA ship RONALD H. BROWN; (resulting article in Barbados Advocate newspaper, March 2005).

APPENDIX C

The Ten Climate Monitoring Principles

1. The impact of new systems or changes to existing systems should be assessed prior to implementation.
2. A suitable period of overlap for new and old observing systems is required.
3. The details and history of local conditions, instruments, operating procedures, data processing algorithms, and other factors pertinent to interpreting data (i.e., metadata) should be documented and treated with the same care as the data themselves.
4. The quality and homogeneity of data should be regularly assessed as a part of routine operations.
5. Consideration of the needs for environmental and climate-monitoring products and assessments, such as IPCC assessments, should be integrated into national, regional, and global observing priorities.
6. Operation of historically uninterrupted stations and observing systems should be maintained.
7. High priority for additional observations should be focused on data-poor regions, poorly observed parameters, regions sensitive to change, and key measurements with inadequate temporal resolution.
8. Long-term requirements, including appropriate sampling frequencies, should be specified to network designers, operators, and instrument engineers at the outset of system design and implementation.
9. The conversion of research observing systems to long-term operations in a carefully planned manner should be promoted.
10. Data management systems that facilitate access, use, and interpretation of data and products should be included as essential elements of climate monitoring systems.

APPENDIX D

Acronyms

AAAS	American Association for the Advancement of Science
ABL	Atmospheric Boundary Layer
ADCP	Acoustic Doppler Current Profiler
ADP	Adopt a Drifter Program
AGU	American Geophysical Union
AMMA	African Monsoon Multidisciplinary Analyses
AMS	American Meteorological Society
AMSR	Advanced Microwave Scanning Radiometer
AMSU-B	Advanced Microwave Sounding Unit – Channel B
AMVER	Automated Mutual assistance Vessel Rescue system
AOML	Atlantic Oceanographic and Meteorological Laboratory
APDRC	Asia-Pacific Data Research Center
APL	Applied Physics Laboratory
ARCs	Applied Research Centers
ArcIMS	Arc Internet Map Server
ARPEGE-CLIMAT	Climate Research Project on Small and Large Scales (France)
ASIMET	Air-Sea Interaction Meteorology system
BAKOSURTANAL	National Coordinating Agency for Surveys and Mapping, Indonesia
BATHY	Bathythermograph format for data exchange
BMRC	Bureau of Meteorology Research Centre (Australia)
BoM	Bureau of Meteorology (Australia)
BPR	Bottom Pressure Recorder
BSH	Bundesamt für Seeschifffahrt und Hydrographie (Federal Maritime and Hydrographic Agency) (Germany)
CARINA	CARbon dioxide IN the Atlantic
C&GC	Climate and Global Change
CCHCO	CLIVAR and Carbon Hydrographic Data Office
CCRI	Climate Change Research Initiative
CCSP	Climate Change Science Program
CDC	Climate Diagnostics Center
CDIAC	Carbon Dioxide Information Analysis Center
CDP	Climate Data Portal
CEOF	Complex Empirical Orthogonal Function
CFD	Computer Flow Dynamics
CGPS	Continuously Operated GPS
CICOR	Cooperative Institute for Climate and Ocean Research
CIMAS	Cooperative Institute for Marine and Atmospheric Studies
CIRES	Cooperative Institute for Research in Environmental Sciences
CLIPS	Climate Information and Prediction Services Project
CLIVAR	CLimate VARiability and Predictability
C-MAN	Coastal-Marine Automated Network
CMAP	CPC Merged Analysis of Precipitation
CMORPH	CPC MORPHing Technique
COLA	Center for Ocean, Land, and Atmosphere Studies
COAPS	Center for Ocean-Atmospheric Prediction Studies
COOP	Coastal Ocean Observations Panel (GOOS)
COP	Climate Observation Program

CORC	Consortium on the Ocean's Role in Climate
COSC	Climate Observing System Council
COSP	Climate Observations and Services
CLIVAR	Climate Variability and Predictability Program
CPC	Climate Prediction Center
CPO	Climate Program Office
CPPA	Climate Prediction Program for the Americas
CPRDB	Comprehensive Pacific Raining Database
CSIRO	Commonwealth Scientific and Industrial Research Organization
CTD	Conductivity, Temperature, Depth
DAC	Data Assembly Center
DART	Deep Ocean Assessment and Reporting of Tsunamis (Buoy)
DBCP	Data Buoy Cooperation Panel
DCP	Data Collection Platform
DCS	Data Collection System
DMC	Drought Monitoring Center
DODS	Distributed Ocean Data System
DOE	Department of Energy
DSL	Digital Subscriber Line
DWBC	Deep Western Boundary Current
ECCO	Estimating the Circulation and Climate of the Ocean
ECMWF	European Centre for Medium-Range Weather Forecasts
ENSO	El Niño-Southern Oscillation
EOF	Empirical Orthogonal Function
EPIC	Eastern Pacific Investigation of Climate
ERA40	ECMWF ReAnalysis-40
ERS	Earth Remote-sensing Satellite
ESDIM	Environmental Services Data and Information Management (NOAA)
ESRI	Environmental Systems Research Institute
ETL	Environmental Technology Laboratory
EVAC	Environmental Verification and Analysis Center
FAO	Food and Agriculture Organization (UN)
FGDC	Federal Geographic Data Committee
FLOAT	Argo subsurface profiling floats
FRX	Frequently Repeated XBT
FS	Frequently Sampled Line
FSU-COAPS	Florida State University Center for Ocean-Atmosphere Prediction Studies
FTE	Full Time Equivalent
FY	Fiscal Year
GAINS	GLOSS Development in the Atlantic and Indian Oceans
GAPP	GEWEX Americas Prediction Project
GCC	Global Carbon Cycle
GCOS	Global Climate Observing System
GCP	Global Carbon Project
GCTE	Global Change and Terrestrial Ecology Program
GCRMN	Global Coral Reef Monitoring Network
GDC	Global Drifter Center
GDP	Global Drifter Program
GEOSAT	Geodesy Satellite
GEWEX	Global Energy and Water-cycle Experiment
GIS	Geographic Information System
GLOSS	Global Sea Level Observing System
GODAE	Global Ocean Data Assimilation Experiment
GODAR	Global Oceanographic Data Archaeology and Rescue Project

GOES	Geostationary Operational Environmental Satellite
GOOS	Global Ocean Observing System
GOSUD	Global Ocean Surface Underway Data project
GPCP	Global Precipitation Climatology Project
GPS	Global Positioning System
GPS@TG	Co-located GPS systems at tide gauge stations
GSOP	Global Synthesis and Observations Panel of CLIVAR
GTS	Global Telecommunications System
GTSP	Global Temperature-Salinity Profile Program
HD	High Density Line
HRX	High Resolution XBT
HURDAT	Atlantic Basin Hurricane Database
IAI	Inter-American Institute for Global Change Research
ICODS	International Comprehensive Ocean-Atmosphere Data Set
IDOE	International Decade of Ocean Exploration
IES	Inverted Echo Sounder
IFREMER	Institut français de recherche pour l'exploitation de la mer (French Research Institute for Exploitation of the Sea) (France)
IGBP	International Geosphere-Biosphere Programme
IGCO	Integrated Global Carbon Observing team
IHO	International Hydrographic Organization
IMBER	Integrated Marine Biogeochemistry and Ecosystem Research
IMET	Improved METeorological instrument
IMMA	International Maritime Meteorological Archive format
IOC	Intergovernmental Oceanographic Commission
IOCCP	International Ocean Carbon Coordination Project
IODE	International Oceanographic Data and information Exchange
IOOS	Integrated Ocean Observing System
IOOS-DMAC	Integrated Ocean Observing System – Data Management and Communication
IOTWS	Indian Ocean Tsunami Warning System
IPRC	International Pacific Research Center
IPY	International Polar Year
IR	Infrared
IRD-Brest	L’Institut de recherche pour le développement – Brest (France)
IRI	International Research Institute for Climate Prediction
ISCCP	International Satellite Cloud Climatology Project
ITCZ	Inter-Tropical Convergence Zone
IUGG	International Union of Geodesy and Geophysics
JAMSTEC	Japan Agency for Marine-Earth Science and Technology
JASL	Joint Archive for Sea Level
JASON	Not an acronym but the name of a joint French/US altimeter mission
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
JCOMMOPS	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology Observing Platform Support
JGOFS	Joint Global Ocean Flux Survey
JIMAR	Joint Institute for Marine and Atmospheric Research, University of Hawaii
JIMO	Joint Institute for Marine Observations
JISAO	Joint Institute for the Study of the Atmosphere and Ocean
JMA	Japan Meteorological Agency
J-OFURO	Japanese Ocean Flux data sets with Use of Remote sensing Observations
JPL	Jet Propulsion Laboratory
JTA	Joint Tariff Agreement
KE	Kuroshio Extension

KEO	Kuroshio Extension Observatory
KESS	Kuroshio Extension System Study
LAS	Live Access Server
LD, LDX	Low Density Sampling Line
LLNL	Lawrence Livermore National Laboratory
MAN	Management Committee (JCOMM)
MAO	Marine and Aviation Operations (NOAA)
MBT	Mechanical Bathythermograph
MEDS	Marine Environmental Data Services
MICOM	Miami Isopycnic Coordinate Ocean Model
MJO	Madden-Julian Oscillation
MOC	Meridional Overturning Circulation
MOCHA	Meridional Overturning, Circulation and Heat Transport Array
MOU	Memorandum of Understanding
MS	Microsoft
NACP	North American Carbon Program
NAO	North Atlantic Oscillation
NASA	National Aeronautics and Space Administration
NCAR	National Center for Atmospheric Research
ncBrowse	Graphical netCDF File Browser
NDBC	National Data Buoy Center
NCDC	National Climatic Data Center
NCDDC	National Coastal Data Development Center
NCEP	National Centers for Environmental Prediction
NEAR-GOOS	North-East Asian Regional GOOS
NERC	National Environmental Research Council
NESDIS	National Environmental Satellite, Data, & Information Service
netCDF	network Common Data Form
NGDC	National Geophysical Data Center
NGO	Non-Governmental Organization
NIC	National Ice Center
NIH	National Institutes of Health
NIWA	National Institute of Water and Atmospheric Research (New Zealand)
NMFS	National Marine Fisheries Service
NMHS	National Meteorological and Hydrological Services
NMRI	Naval Medical Research Institute
NOAA	National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Center
NOPP	National Ocean Partnership Program
NORPAX	North Pacific Experiment
NOS	NOAA Ocean Service
NOSA	NOAA Observing System Architecture
NRC	National Research Council
NSCAT	NASA Scatterometer
NSF	National Science Foundation
NTC	National Tidal Centre, Australia
NWP	Numerical Weather Prediction
NWS	National Weather Service
NWS-PR	National Weather Service Pacific Region
NVODS	National Virtual Ocean Data System
MON	NWS Marine Observation Network
OAFlux	Objectively Analyzed air-sea heat Fluxes
OAR	Office of Oceanic and Atmospheric Research
OSCC	Ocean Carbon and Climate Change Program

OCCI	Ocean Climate Change Institute
OceanSITES	Ocean Sustained Interdisciplinary Time series Environmental Observatory
OCO	Office of Climate Observation
ODINAFRICA	Ocean Data and Information Network for Africa
OGP	Office of Global Programs
OMAO	Office of Marine and Aviation Operations
OOPC	Ocean Observations Panel for Climate
OpeNDAP	Open Source Project for Network Data Access Protocol
OSMC	Observing System Monitoring Center
PacificGOOS	Pacific Global Ocean Observing System
PACIS	Pan-American Climate Information System
PACS	Pan American Climate Studies
PCES	North Pacific Marine Science Organization
PDO	Pacific Decadal Oscillation
PEAC	Pacific ENSO Applications Center
PHOD	Physical Oceanography Division
PIES	Pressure Gauge Equipped Inverted Echo Sounder
PIRATA	Pilot Research Moored Array in the Tropical Atlantic
PMEL	Pacific Marine Environmental Laboratory
PMO	Port Meteorological Officer
PNA	Pacific North America
PNNL	Pacific Northwest National Laboratory
POGO	Partnership for the Observation of the Global Oceans
PP&I	Program, Planning & Integration
QA	Quality Assurance
QSCAT	Seawinds on QuikScat
RRP	ENSO Rapid Response Project
RSMAS	Rosenstiel School of Marine and Atmospheric Science
R/V	Research Vessel
RVIB	Research Vessel / Ice Breaker
RVSMDC	Research Vessel Surface Meteorology Data Center
SABOM	South African Bureau of Meteorology
SAC	Special Analysis Center
SAF	Subantarctic Front
SAMOS	Shipboard Automated Meteorological and Oceanographic System
SAR	Synthetic Aperture Radar
SAZ	Subantarctic Zone
SCPP	Seasonal-to-Interannual Climate Prediction Program
SCMI	Southern California Marine Institute
SCOR	Scientific Committee for Ocean Research
SDE	Spatial Database Engine
SEACOOS	Southeast Atlantic Coastal Ocean Observing System
SEAFLUX	Ocean Surface Turbulent Flux Project
SEARCH	Study of Environmental Arctic Change
SEAS	Shipboard Environmental data Acquisition System
SEAS	Windows version of the SEAS shipboard software
SEC	South Equatorial Current
SERREAD	Scientific Educational Resources and Experience Associated with the Deployment of Argo profiling floats in the South Pacific Ocean
SI	Seasonal-to-Interannual
SIO	Scripps Institution of Oceanography
SIO-ECPC	Scripps Institution of Oceanography-Experimental Climate Prediction Center
SLP	Sea Level Pressure
SLP-PAC	Sea Level Program in the Pacific

SOC	Southampton Oceanography Centre
SOI	Survey of India
SOLAS	Surface Ocean-Lower Atmosphere Study
SOOP	Ship-of-Opportunity Program
SOOPIP	Ship-of-Opportunity Implementation Panel
SOI	Southern Oscillation Index
SOT	Ship Observations Team
SPARCE	South Pacific Rainfall Climate Experiment
SPCZ	South Pacific Convergence Zone
SRDC	Surface Reference Data Center
SSG	Scientific Steering Group
SSM/I	Special Sensor Microwave Imager
SSP	Sea Surface Pressure
SST	Sea Surface Temperature
START	Global Change System for Analysis, Research, and Training
STD-C	Standard C
STF	Subtropical Front
SURFRAD	Surface Radiation Budget Network
TAO	Tropical Atmosphere Ocean Array
TAV	Tropical Atlantic Variability
TESAC	Temperature, Salinity, Currents (format for data exchange)
TMI	TRMM Microwave Imager
TOGA	Tropical Ocean Global Atmosphere Program
TOGA/COARE	Tropical Ocean Global Atmosphere / Coupled Ocean-Atmosphere Response Experiment
TOPEX	Ocean TOPography Experiment
TRACKOB	Track observation
TRITON	Triangle Trans-Ocean Buoy Network
TRMM	Tropical Rainfall Measurement Mission
TSG	Thermosalinograph
UHSLC	University of Hawaii Sea Level Center
UNCED	United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNOLS	University – National Oceanographic Laboratory System
UOT	Upper Ocean Thermal
UOTC	Upper Ocean Thermal Center
UPS	Uninterruptible Power Supply
URI	University of Rhode Island
USB	Universal Serial Bus
USCG	United States Coast Guard
USIABP	U.S. Interagency Arctic Buoy Program
USGCRP	U.S. Global Change Research Program
UW	University of Washington
VOS	Volunteer Observing Ship
VOSclim	WMO Volunteer Observing Ship Climate project
WCRP	World Climate Research Program
WDC-A	World Data Center-A for Oceanography
WFS	Web Feature Service
WGASF	Working Group on Air-Sea Fluxes
WHO	World Health Organization
WHOI	Wood's Hole Oceanographic Institution
WMO	World Meteorological Organization
WMS	Web Map Service
WOCE	World Ocean Circulation Experiment

WWE	Westerly Wind Event
WWW	The World Weather Watch of WMO
XBT	Expendable Bathythermograph
XCTD	Expendable Conductivity Temperature Depth